

ing upon the climatology of Belgium testify to his skill and energy. He was well qualified for this position because meteorology had for him many attractions. As early as 1876 he tried to give greater uniformity to the method of meteorological observing by publishing a code of instructions for observers, and throughout an active life he exhibited a keen interest in this branch of physics. His rain-chart of Belgium is a specimen of what he could accomplish by ingenuity and painstaking industry.

If M. Lancaster's services were not brilliant, they were persistent and practical. He admirably filled the position in which he was placed, and by his comparatively early death at the age of fifty-nine years the observatory has lost a capable and devoted servant. In his lifetime his scientific ardour was adequately acknowledged. He was a member of many learned societies at home and abroad, and in addition to being Chevalier de l'Ordre de Léopold, he was decorated with the Ordre de la Couronne du Congo, La Croix civique de 1<sup>re</sup> Classe, and la Croix commémorative du Règne de S. M. Léopold II.

#### NOTES.

THREE years ago the late Sir Michael Foster described in these columns (vol. lxxi., p. 443) the foundation by Prof. A. Mosso of the Col d'Olen Laboratory, at an altitude of 3000 metres on the southern slopes of Monte Rosa. On that occasion it was pointed out that the financial condition of the laboratory left much to be desired, and the hope was expressed that Prof. Mosso would secure ere long the necessary additional funds required. We are glad to learn, from a pamphlet descriptive of recent work at the laboratory, that the income of the institution has improved greatly, the subscriptions now reaching 117,504 francs, being very near the 120,000 francs originally considered necessary. It has been decided that the affairs of the laboratory shall be administered by a committee consisting of the professors of physiology, botany, and hygiene in the University of Turin, with the president and treasurer of the Italian Alpine Club. Prof. A. Mosso is the president, and Prof. O. Mattiolo the secretary. As was mentioned last week, two places in the laboratory are reserved to England, on the nomination of the Royal Society. Applications for a place should be made in the first instance to the Royal Society.

WE regret to see the announcement of the death, in his eighty-fourth year, of Prof. K. Möbius, professor of zoology in the University of Berlin.

ON Thursday next, May 21, Dr. Alexander Scott will deliver the first of a course of three lectures at the Royal Institution on "The Chemistry of Photography."

PROF. A. LAWRENCE ROTCH, the founder and director of Blue Hill Meteorological Observatory, Massachusetts, U.S.A., has been elected an honorary member of the Royal Meteorological Society.

A REUTER message from Athens announces that the German Emperor has presented Prof. Dörnfeld, head of the German Archæological Institute there, with a sum of 5000 marks (250*l.*) for the purpose of starting excavations on the site of the ancient Pylos.

At the meeting of the National Academy of Science held in Washington on April 23, the following foreign associates were elected:—Prof. Svante A. Arrhenius, Stockholm; Prof. J. Larmor, Sec.R.S., Cambridge; Dr. Ivan P. Pavlov, St. Petersburg; Prof. Hugo R. van Seeliger, Munich; and Prof. T. Barrois, Lille.

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THE death is announced of Dr. Hermann Wedding, professor of metallurgy at the Berlin School of Mines. He was an honorary member of the Iron and Steel Institute, and in 1896 received the Bessemer gold medal of that society. He translated Dr. Percy's works on metallurgy into German, and was the author of a large number of important metallurgical treatises.

THE Paris correspondent of the *Times* states that, within a year, in virtue of a contract with a French firm, Spain is to be provided with wireless telegraphy stations. The Canaries and the Balearics are to receive, respectively, seven and two stations, which will keep them constantly in touch with the fifteen stations of the Peninsular coast. It is anticipated that radio-telegraphic communications will shortly be arranged between Pernambuco and Tenerife. In that case the Spanish stations will form a link between Europe and South America.

IN the Journal of the Franklin Institute (vol. clxv., No. 4) Dr. Persifor Frazer traces the history of the Franklin Institute from its foundation in 1824 to the present time, giving portraits of the eminent men who have helped in the development of the society. A subscription of 50,000 dollars, given to the building fund by Mrs. Anna W. Walker in memory of her father, has assured the institute a new lease of life under greatly improved conditions.

THE death is announced of Mr. Caleb Barlow, chief preparator of fossils in the British Museum (Natural History). Mr. Barlow entered the British Museum as a mason in 1874, and gradually acquired remarkable skill in the preparation and restoration of fossil skeletons. He was especially successful in mounting imperfect specimens and modelling missing parts to complete them. Much of his unofficial time was devoted to other institutions, and examples of his skilful work are to be found in many museums.

THE *Comptes rendus* of the Paris Academy of Sciences for May 4 contains a communication, by M. Alfred Angot, with respect to the application of wireless telegraphy to the forecasting of the weather. The communication is practically amplifying the note by M. Bigourdan, to which reference was made in NATURE of May 7, and gives a *résumé* of the present situation. It is mentioned that for the last year the Meteorological Office has received each day wireless messages from several ships, the information being regularly published in the Daily Weather Report. M. Angot states that this information adds somewhat to our knowledge of the state of the atmosphere over the Atlantic. He directs attention to the report of Dr. Shaw on this subject to the International Meteorological Committee at Paris in September, 1907. It is pointed out that the obstacle to the extension of the use of wireless messages for weather forecasting is one purely of finance, and the necessary expense precludes the English and French weather offices from taking full advantage of the opportunity afforded.

"THE Daylight Saving Bill," which passed its second reading in the House of Commons on March 26, and is now before a committee of the House, proposes that early on the morning of each of the first four Sundays in April all the public clocks shall be set forward twenty minutes and be set back twenty minutes on each of the first four Sunday mornings in September. Cape Town has been cited as an example to show how easily the origin of public time can be changed. But Sir David Gill shows, in a letter in Tuesday's *Times*, that even to change the origin of time once for all requires careful preparation, and that to

make changes in the manner proposed by the Bill must lead to confusion. Instead of adopting this method of making use of daylight hours, Sir David Gill suggests a change in our national habits and customs, such as was advocated in an article in *NATURE* of February 20 (vol. lxvii., p. 372). He points out that if, for example, the Bank of England could be persuaded to open business at 9 a.m. instead of 10 a.m. from April 1 to the end of September, no doubt all other banks and offices would follow suit, and if employers of labour would open their works an hour earlier in the spring and summer months the objects of the Bill would be in great part gained without difficulty or confusion.

THE news of the death on May 10 of the Rev. Father Eugene Lafont, S.J., C.I.E., has been recently notified from India, and will be received by his numerous friends with great regret. He died in Darjiling, the hill station of Bengal, to which place he went some little time ago. His age was seventy-one years, and he lived almost continuously in Bengal, with perhaps one visit to Europe, for about forty-three years. Father Lafont will long be remembered in Bengal for his distinguished scientific attainments and for the enthusiastic zeal with which he fostered the study of practical science by every means in his power among Indian and Eurasian students. He was, however, an educationist rather than an original thinker or original worker, but he did yeoman service for science in Bengal. For many years he was professor of physical science at St. Xavier's College, in Calcutta, and afterwards he became rector of the same institution. This college is one which makes provision for the education of the domiciled European and Eurasian population of Calcutta and Lower Bengal, and in this way Father Lafont secured great influence among these classes. The college is also popular with native Indian gentlemen, and by his influence with Rajahs and other men of note Lafont was able to obtain several endowments for the purchase of scientific apparatus. This college possesses an excellent supply of most costly lecture apparatus, especially of the kind necessary for popular lecture demonstration, in which way that college is better equipped than any other in India. Indeed, in addition to his sterling qualities as an educationist, Father Lafont was a born popular scientific lecturer, and had a peculiar facility for putting dry facts in a popular way and an equal facility for making his lectures interesting by excellent experimental illustrations. For more than thirty years he was a prominent fellow of the Calcutta University, both under its former and its present constitution, and he held a number of prominent honorary posts under it, while his influence is to be found in many of the science courses of study as at present arranged. He was always held in the greatest respect and esteem by all his fellow-workers, and was most popular with all Indian gentlemen. It was to a considerable extent owing to his cooperation and influence that the late Dr. Mahendra Lal Sarkar, C.I.E., was able to start, some thirty years ago, a society called the "Indian Association for the Cultivation of Science" in Calcutta, an association which is still doing very useful work in diffusing scientific knowledge among various classes of Indian gentlemen. Father Lafont was for many years an active supporter of this society, and was one of its honorary lecturers, and later on became its vice-president. His name will thus be long kept in mind as that of one of the pioneers of scientific education in Bengal, and his death is hence a great loss, especially at this time, when strenuous efforts are being made to put education in Bengal on a satisfactory basis.

WE have to acknowledge the receipt of the ninth fasciculus of the "Fauna of New England," now in course of publication in Occasional Papers of the Boston Society of Natural History. It is devoted to a list of the spiders (Araneida), which has been drawn up by Elizabeth B. Bryant, and comprises 399 definitely recognised species, together with about a dozen others which are at present unrecognised.

WE are indebted to the author, Dr. E. Balducci, for a copy of a paper entitled "Morfologia dello Sterno degli Uccelli," published by C. and G. Spighi, of Prato, at the price of five lira. It is illustrated by a large number of figures of the sternum in a numerous series of nocturnal and diurnal birds of prey. After discussing the bearing of the characters of this part of the skeleton on the relationship of the Striges to the Accipitres, the author points out that not only can the different species of these two groups be recognised by means of the sternum, but that there are also recognisable sexual features in the sterna of individual species.

IN the February issue of the Proceedings of the Philadelphia Academy, Mr. F. W. True discusses the fossil cetacean beak from Charles County on which Cope founded the genus and species *Rhabdosteus latiradix*, together with certain other fragmentary beaks and teeth which have been assigned to the same form. In Mr. True's opinion, it is probable that while the teeth belong to the widely spread genus *Schizodelphis*, the type beak is generically distinct. Of the other two beaks, one apparently indicates a dolphin allied to the Amazonian *Inia*, while the third may be provisionally assigned to the extinct genus *Priscodelphinus*.

PROTECTIVE colouring in South African birds forms the subject of an article by Mr. A. Haagner in the April issue of the Journal of the South African Ornithologists' Union. One of the most remarkable instances of such protective resemblances is furnished by the rufous-cheeked nightjar. Noticing what appeared to be a strange protuberance on a bough, the author on one occasion ascended a tree to ascertain its real nature, when he was astonished to see a nightjar fly off. "The bird had been sitting lengthways on the bough, flattened up against it, and the assimilative nature of its plumage was most marked, the mottled grey-brown and rufous colouring harmonising with the bark of the tree on which the nightjar sat."

TO the first number for the current year of the *Bulletin de la Classe des Sciences* of the Académie Royale de Belgique, Comte Goblet d'Alviella contributes a memoir on the excavations at Court-Saint-Etienne, in the valley of the Orne, one of the richest prehistoric cemeteries in Belgium. The remains discovered consist of articles in bronze and iron, with numerous examples of pottery. Of bronze, the most remarkable article is either a portion of a sword-belt or of a horse bridle. In some of the mortuary jars the bones of children have been discovered, pointing either to the burial of infants with their dead mothers or to a sacrifice intended to ensure the fertility of the crops. The cemetery appears to be of the well-known Hallstatt period, and the researches of Comte d'Alviella are of much interest in relation to the extension of the bronze and iron culture from the south into northern Europe.

IN the fourth part of vol. xvii. of the Proceedings of the Royal Physical Society, Edinburgh, Prof. D. C. McIntosh discusses variation in the lobster, both in respect of the relative sizes of males and females, the relative numerical proportions of the two sexes, and in regard to the number and arrangement of the genital apertures in

the male. In respect to the first point, measurements show that the female is shorter than her partner, while she also seems to be more slenderly built. The relative numbers of the two sexes cannot yet be definitely determined; it is true that more males than females are captured, but this may be due to their larger dimensions, which prevent them from escaping through the meshes of the nets, and may also lead to a smaller number being rejected as unsaleable on account of inferior size. Finally, it is demonstrated that the occurrence of additional genital apertures is by no means uncommon.

THE March number of *Biometrika* contains two papers dealing with the inheritance, in two separate instances, of split hand and foot deformities in man, the so-called "lobster-claw," in which Messrs. Lewis and Embleton show that the deformity is inherited and varies in degree, although not in kind. The nature of the deformity is illustrated in a series of radiographic plates. The authors discuss the application of Mendelism to their results, and conclude that, despite the apparent segregation, the transmission is not governed by Mendelian laws. In an addendum Dr. Lewis cites cases in which hypophalangia or brachydactylia has been transmitted through normal individuals, so that the basis for the Mendelian application fails. "It may be," he urges, "and very probably is the case, that Mendelism applies to certain hereditary human deformities; but the conclusions which are being drawn, or implied, conclusions having a serious sociological aspect, are at present ahead of the facts at our disposal." In the family discussed by Mr. Pearson, there was no instance of transmission through a normal individual, but the Mendelian ratios do not fit. This case is illustrated by plates bringing out the variability of the deformity.

AMONG several articles of more than usual interest in the February number of the *American Naturalist*, attention may be directed to one on the law of geminate species, by Dr. D. S. Jordan, of Stanford University. Starting with the axiom that in any region the nearest representative of a given species is to be found, not in the same region or in a remote region, but in a neighbouring district separated from the first by a barrier of some kind or other, the author points out that this law rests on the fact that the minor differences separating species and races of animals are due to some form of segregation or isolation. On account of the presence of some obstacle or barrier, the members of one group are prevented from breeding with those of another minor group or with the bulk of the species, and as a result local peculiarities arise, which eventually develop into distinct races or species. On the other hand, where a number of individuals of a species are simultaneously modified in the same way by similar conditions of food or climate, they show no permanence in heredity, and should have no permanent place in taxonomy. This is exemplified by Mr. Beebe's researches into the effects of moist air in inducing dusky colours in birds, which demonstrate the impermanence of the groups or subspecies characterised by dark shades of colour developed in regions of heavy rainfall. These words, it may be added, should be well weighed by those taxonomists who name local forms characterised by the development of either unusually pale (in desert districts) or unusually dark (in moist forest regions) colouring. The fishes on the two sides of the Isthmus of Panama, which have been separated since the late Miocene or early Pliocene, afford excellent examples of geminate (twin, or representative) species, or perhaps, as we might in many cases better say, races.

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IN a letter to NATURE of October 3, 1907, Mr. Ainley Walker asked for definite evidence bearing upon the widespread belief in many countries that the stings of bees act both protectively and as a cure for rheumatism. Dr. J. Newton Friend, North Terrace, Mildenhall, Suffolk, sends us an account of a case which has just come under his personal knowledge. Two or three years ago a country schoolmaster in Norfolk, who suffered very severely from rheumatism in the back, deliberately exposed his arms to the stings of bees, and was stung all over the arms. By the time, however, that his arms were well again, his rheumatism had completely disappeared. The gentleman who took these heroic measures is now close on fifty years of age. Dr. Friend suggests the addition of the following two questions to those given by Mr. Walker:—(1) What is the approximate age of the person supposed to have been cured? (2) In what part of the body was the rheumatism manifested, where was the person stung, and for how long was the cure effective?

MR. T. E. D. INNES has compiled a list of Indian jungle products used as food by the natives during periods of famine, that has been issued as an appendix to the February number of the *Indian Forester*. Some of the fruits, although lacking flavour, are eaten raw, others are parched, or, as in the case of *Ficus glomerata*, *Shorea robusta*, &c., the fruits are ground into flour and baked into cakes. Several climbers yield roots that are parched or boiled, and vegetables are provided by the leaves of *Vicia hirsuta*, *Chenopodium album*, *Chlorophytum tuberosum*, and others.

THE sixth number of the botanical section of the *Philippine Journal of Science*, concluding the section for the year 1907, is devoted to short notes and to the third portion of the index to Philippine botanical literature compiled by Mr. E. D. Merrill. Mr. Merrill also contributes a first addendum to his identifications of the species described in Blanco's "Flora de Filipinas," and a few additions to the species recorded for the islands. Species of *Pteridanthus* and *Petræovites* are new to science, and provide first records for the genus in the Philippines. Dr. E. B. Copeland is responsible for a revision of the fern genus *Tectaria*; many of the species are transferred from the subgroup *Sagenia* of the genus *Nephrodium*.

A NOTE on the flora of Prince Charles Foreland, Spitzbergen, by Mr. R. N. R. Brown, published in the Transactions of the Botanical Society of Edinburgh (vol. xxiii.), refers to collections made by Dr. W. S. Bruce. The number of species totals fifty-five, or rather more than a quarter of the number recorded for the whole archipelago. The character of the flora is evident from the observation that *Saxifraga oppositifolia* is probably the commonest plant on the island and covers large areas; other species of *Saxifraga* are *Hirculus*, *aizoides*, *caespitosa* and *nivalis*; the species of *Ranunculus* and *Draba* are also interesting. The flora is European, and shows an entire absence of an American element.

MR. G. H. SHULL records some additions to the list of plants that conform to Mendelian principles in the February issue of the *Botanical Gazette*. The first instance cited is that of a branched specimen of the so-called "Russian" sunflower; experiments made in crossing branched and unbranched plants indicated that branching is a dominant character. Other examples were provided by plants of *Lychnis dioica* and *Verbascum Blattaria*. In the former case purple and white flowers provided reciprocal characters when according to expectation white proved to be recessive. For *Verbascum*, yellow colour in the flowers was found to



be dominant over white, this being contrary to the experience with *Polemonium* and *Matthiola*; it is noted that in *Verbascum* the yellow is a sap-colour, whereas in the other two plants it is a plastid-colour.

THE new identifications, "Decades Kewenses, XVII.," that are published in the *Kew Bulletin* (No. 3) are almost entirely Malayan plants named by Sir George King, F.R.S., and Mr. J. Gamble; species are added to the genera *Clerodendron*, *Premna*, *Vitex*, and *Petræovitex* of the order Verbenacæ. Colonel Prain forms a new genus allied to *Cymaria* (order Labiatæ) on the Malayan plant, *Acrymia ajugiflora*. To the same number Mr. T. W. Brown communicates an article on banana cultivation in Egypt, where the Chinese or Canary banana provides the commercially important variety. A synopsis of the New Zealand species of *Rhodophyllis*, by Mr. A. D. Cotton, is concerned with corrections of diagnoses by Harvey and J. Agardh; a new species is proposed, and the recently formed *Rhodophyllis chathamensis* is withdrawn. The seventh list of additions to the wild fauna and flora of the gardens includes Coleoptera, ants, scale insects, and a few plants. Mr. R. A. Rolfe contributes an article to show that there is considerable doubt as to the localities of some of Cuming's Philippine plants.

At the meeting of the Vienna Academy of Sciences of April 2, Prof. J. Hann presented a paper entitled "The Daily Variation of Wind-force on the Mountain Peaks of South India in their Relation to the Daily Oscillation of Air-pressure." The author calculated the daily range of wind-force on the Dodabetta peak (lat.  $11^{\circ} 32'$  N.), and at the Kodaikanal Solar Observatory (lat.  $10^{\circ} 40'$  N.), for separate months, and found that from October to May, during the period of the north-east monsoon, the maximum wind-force occurred between 9h. and 10h. a.m., but that in June, with the advent of the south-west monsoon, it suddenly jumped backwards to 4h.-1h. a.m., while at the recurrence of the north-east monsoon in October it again jumped forward to 9h.-10h. a.m. After much laborious investigation Prof. Hann traced the cause of the shift of epoch to the double daily oscillation of the barometer, which affects the east and west wind in a different manner, as the author fully explains in the paper.

THE *Scottish Geographical Magazine* for April contains a very interesting article on the climate of the British Isles by Mr. A. Watt, secretary to the Scottish Meteorological Society. The average distribution of temperature in mid-winter and in midsummer is shown with great clearness by two maps drawn by Dr. Buchan, and reproduced from Bartholomew's "Atlas of Meteorology"; the trend of the isotherms plainly exhibits the ameliorating influence of the sea on the climate. The least difference between winter and summer is in the south-west of Ireland, where the isotherms shift by only  $14^{\circ}$ , and the greatest in the east central district of England and near London, where the isotherms shift by  $25^{\circ}$ . The author points out that the prevalence of warm south-westerly winds is the controlling factor of our climate; the Gulf Stream, to which the mildness of our winters is commonly attributed, has but little direct influence, though it may have an indirect effect by probably producing the low-pressure area off Iceland, which, together with the area of high pressure near the Azores, is the cause of our south-westerly winds. The average rainfall is exhibited by a map specially drawn by Dr. Mill from his unique collection of records. The author mentions several interesting facts tending to show that there is no evidence that our climate has changed, although it has been subject to considerable oscillations.

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THE paper on electric supply prospects and changes as affected by metallic filament lamps and electric heating, by Messrs. Handcock and Dykes, read before the Institution of Electrical Engineers recently, gave rise to a very important discussion, which occupied two meetings. The metallic filament lamp has been welcomed on all sides as a solution of the problem of cheap electric lighting to compete with incandescent gas among small consumers, and there is no doubt that it has done, and will do, a great deal towards bringing the cost of lighting by electricity within the means of the smaller consumer. At the same time, central station engineers are faced with the problem that, owing to the small consumption of the metallic filament lamp, the output of the central station is very greatly reduced, thus entailing a very large increase in consumers to make up the loss incurred. Granted that this increase can be obtained, owing to the facilities that the metallic filament lamp offers, a two-fold difficulty still remains to be surmounted—(a) the cost of installing the wiring in small houses, and (b) the cost of the house-service connection. The first falls on the consumer, whether he installs it at his own cost or on the "free wiring system," the latter on the supply company. The present systems of wiring employed in this country have been made as good, as solid, and as safe as is possible, and consequently the expense is great. On the Continent the course followed is the reverse. Perhaps the system employed is not quite so secure from possible danger as is desirable, but surely some happy mean may be found. Surface wiring with a high-grade flexible would be infinitely cheaper than our present methods, and if central station engineers would agree to this or some cheaper method than that now employed, the wiring contractors would be pleased to avail themselves of the permission. At present the contractor is handicapped by the cost of the installation being too great for the prospective consumer, and consequently the central station loses also.

IN connection with the letter from Dr. J. W. Evans on the amount of helium in the earth's atmosphere which appeared in *NATURE* of April 9 (vol. lxxvii., p. 535), Prof. J. Hann has sent us the following table given by him in the *Meteorologische Zeitschrift* for March, 1903:—

Percentage composition by volume of the atmosphere at different altitudes and probable temperatures.

	Altitude ... 0 km.	10	20	50	100 km.
Temperature ... $10^{\circ}$ C.	...	$-18^{\circ}5$	$-38^{\circ}5$	$-60^{\circ}$	$-80^{\circ}$ C.
Nitrogen ...	78.03	81.20	84.34	79.17	0.099
Oxygen ...	20.99	18.10	15.19	7.03	0.0
Argon ...	0.94	0.56	0.31	0.03	0.0
Carbonic acid ...	0.03	0.015	0.006	0.0	0.0
Hydrogen ...	0.01	0.035	0.147	13.64	99.45
Neon ...	0.0015	0.002	0.004	0.0	0.0
Helium ...	0.00015	0.0	0.002	0.126	0.453
Krypton ...	0.00010	0.0	0.0	0.0	0.0

Total pressure... 760 mm. 199.2 42.2 0.32 0.0223

DR. LULL's memoir on the evolution of the elephant, referred to in *NATURE* of March 26 (vol. lxxvii., p. 494), appeared, not in the March number of the *American Naturalist* as stated, but in the March number of the *American Journal of Science*.

LIEUT.-COLONEL SEDGWICK writes to say that in the notice of his book, "Man and his Future," which appeared in last week's issue of *NATURE* (p. 5), the date of his paper on the "Form of the Atom" should have been given as 1892, and not 1902, as stated at the end of the review.

A SECOND edition of Mr. Richard Semon's "Die Mneme als erhaltendes Prinzip im Wechsel des organischen Geschehens" has been published in Leipzig by Mr.

Wilhelm Engelmann, and copies may be obtained in this country from Messrs. Williams and Norgate. The first edition was reviewed at some length in *NATURE* of February 8, 1906 (vol. lxxiii., p. 338), and reference may be made to that notice for a description of the characteristics of the work.

MESSRS. CHAPMAN AND HALL, LTD., have published a second edition of Dr. F. H. Getman's "Laboratory Exercises in Physical Chemistry." The first edition was reviewed in the issue of *NATURE* for July 28, 1904 (vol. lxx., p. 296). A chapter on thermostats has been inserted in the new edition, and the chapters treating of electromotive force, solubility, and chemical dynamics have been extended. The measurement of radio-activity has been dealt with briefly, and some other modifications made.

THE *Physical Review* for February contains an article by Mr. F. L. Bishop on the heats of dilution of certain aqueous solutions he has measured recently at the Massachusetts Institute of Technology. He finds that if concentration be represented by the ordinate, and the heat absorbed when a solution containing one gram-molecule of a dissolved salt is diluted down to the concentration in question be represented by the abscissa of a curve, the curve is a straight line for the nitrates of potassium, sodium, and barium, and approximates to two straight lines intersecting at a concentration of about 1.2 gram-molecules per litre in the case of potassium chloride. The break in this curve the author puts down to some chemical change taking place in the solution.

We have received from the Charles Urban Trading Company, Ltd., 89-91 Wardour Street, London, W., a copy of their latest catalogue, entitled "Urbanora, the World's Educator." The list, which runs to 252 pages, deals with scientific and educational subjects treated in such a way as to be suitable for exhibition by the bioscope and microkinematograph. Films are available which depict various forms of animal life, bacteriological and other microscopic forms, and typical natural phenomena. The catalogue provides detailed information as to the subjects of science which can now be illustrated in such a way as to bring vividly before students essential facts. The actual steps in the life-histories of lowly organisms, the sequence of events in the study of the habits of plants and animals in their natural surroundings, and the reproduction of the details in typical operations to assist the teaching of operative surgery may be mentioned as examples of the way in which the kinematograph is now being utilised for educational purposes.

#### OUR ASTRONOMICAL COLUMN.

THE  $D_3$  (HELIUM) ABSORPTION LINE IN THE NORMAL SOLAR SPECTRUM.—An important statement by Mr. J. Evershed, concerning the presence of the dark helium,  $D_3$ , line in the solar spectra photographed by Mr. Nagaraja, appears in No. 396 (p. 212, May) of the *Observatory*. Readers of these columns will remember that various observers have criticised copies of Mr. Nagaraja's photographs, and have arrived at the conclusion that the dark line shown thereon is probably not the absorption line ( $D_3$ ) of helium. But Mr. Evershed has carefully measured this dark line shown on a number of plates, and the results of his measures lead him to the belief that the line is really the helium absorption line. Micrometer measures on the actual photograph from which the copies were taken (May 4, 1907) give 5876.15 and 5876.17 as the wave-lengths of the bright line at the limb and of the dark line respectively, whilst from six determinations of each of a series of photographs obtained during 1907 Mr.

Evershed obtains the mean values 5875.96 and 5875.97 respectively. The coincidence is indeed very close, and the mean value is in good accordance with the values obtained by Prof. Rowland and Prof. Hale. Mr. Evershed suggests that the prolongation of the dark line across the umbral areas, a phenomenon which proved a difficulty with the visual observers who criticised the results, may be due to the unsteadiness of the image on the spectrograph slit during a long exposure.

THE LIGHT-CURVE OF  $\delta$  CEPHEI.—Between June, 1906, and September, 1907, Mr. Joel Stebbins, of the Illinois University Observatory, made a large number of observations of  $\delta$  Cephei with a polarising photometer attached to the 12-inch refractor. Seventy-four observations, each consisting of ninety-six settings, were made, giving a total of 7104 settings, and every precaution was taken to make each observation perfectly independent and free from systematic errors; a sixth magnitude companion at a distance of 41" was the only comparison star employed, but there is no evidence to show that all the variation exhibited is not due to the well-known variable. The light-curve obtained from the observations shows secondary fluctuations with maxima at 4.6 and 0.4 days. A maximum occurred on 1906, July 3.29 (=J.D. 2417395.29) and a minimum on July 1.87 (=J.D. 2417393.87), G.M.T.; the range of magnitude is shown to be 0.76 (*Astrophysical Journal*, vol. xxvii., No. 3, p. 188, April).

THE MASSES OF  $\alpha$  CARINÆ AND  $\alpha$  PAVONIS.—In a recent note in these columns (No. 2005, p. 520, April 2) we directed attention to a communication from Mr. Gore to the *Observatory* in which the writer, basing his conclusions on spectroscopic observations made at the Lick Observatory, showed that the binaries  $\alpha$  Carinæ and  $\alpha$  Pavonis should have very small masses. From a letter now published in the same journal (No. 396, p. 215, May), from Mr. H. C. Plummer, it appears that Mr. Gore's deductions were based on a slight misapprehension as to the data given in the Lick publication, and his results are therefore erroneous. Mr. Plummer's correction shows that it is quite impossible to justify the inference that the systems of these two stars are necessarily of very small mass.

THE NEW TOWER TELESCOPE OF THE MOUNT WILSON SOLAR OBSERVATORY.—No. 3, vol. xxvii., of the *Astrophysical Journal* (p. 204, April) contains an interesting description, by Prof. Hale, of the tower telescope recently erected at the Mount Wilson Observatory. We gave a brief description of the instrument proposed in our issue of February 28, 1907 (p. 424, No. 1948), and for fuller details must refer our readers to Prof. Hale's illustrated description of the actual instrument. The advantages expected to be obtained by this form of telescope mounting have been fully realised, and only one or two minor modifications, e.g. the reduction of the thickness (12 inches) of the mirrors employed, will have to be made. Among the illustrations reproduced in Prof. Hale's paper there is an excellent photograph of a sun-spot spectrum, on the scale of Rowland's map, which shows with remarkable clearness the "widened lines" in the  $h$  region.

FURTHER OBSERVATIONS OF JUPITER'S EIGHTH SATELLITE.—In No. 4246 of the *Astronomische Nachrichten* (p. 367, May 1) Sir W. H. M. Christie gives the positions of the newly discovered eighth satellite of Jupiter. The plates from which these positions were deduced were obtained on March 31 and April 3 with the 30-inch reflector, and the position of the satellite referred to three or four faint comparison stars. The positions of the latter were then determined, with reference to some thirty A.G. Catalogue stars, on a plate taken with the 13-inch astrographic refractor.

OBSERVATIONS OF PERSEIDS IN 1907.—The results of the observations of the Perseids, made by three sets of observers connected with the Kasan Observatory during the nights of August 11, 12, and 13, 1907, are given by Herr W. Milowanov in No. 4246 of the *Astronomische Nachrichten* (p. 353, May 1). The paths of 201 Perseids were recorded, and the general radiant was found to be  $\alpha = 43^\circ.8$ ,  $\delta = +54^\circ.0$  (1905.0). The real paths of some forty meteors were computed, the mean heights at the beginning and end of their visible traces being 127 km. and 86 km. respectively.